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EXAMINER
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AKLILU, KIRUBEL

ART UNIT	PAPER NUMBER
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2614

DATE MAILED: 05/31/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

**Application No.**

09/877,166

**Applicant(s)**

DENIES, MARK

**Examiner**

Kirubel Aklilu

**Art Unit**

2614

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 08 June 2001.  
2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-20 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-20 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☒ The drawing(s) filed on 08 June 2001 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Claim Objections***

**Claim 5** is objected to because of the following informalities: Claim 5 recites "The method of streaming data . . ." but does not refer to a previous Claim. Claim 5 is interpreted to be an independent Claim and is assumed to mean "A method of streaming data . . ." Appropriate correction is required.

### ***Claim Rejections - 35 USC § 112***

**Claim 7** contains the trademark/trade name "Real Networks Server". Where a trademark or trade name is used in a claim as a limitation to identify or describe a particular material or product, the claim does not comply with the requirements of 35 U.S.C. 112, second paragraph. See *Ex parte Simpson*, 218 USPQ 1020 (Bd. App. 1982). The claim scope is uncertain since the trademark or trade name cannot be used properly to identify any particular material or product. A trademark or trade name is used to identify a source of goods, and not the goods themselves. Thus, a trademark or trade name does not identify or describe the goods associated with the trademark or trade name. In the present case, the trademark/trade name is used to identify/describe a server and, accordingly, the identification/description is indefinite.

***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims **1-2, 4-8, 10-12, and 14-18** rejected under 35 U.S.C. 102(e) as being anticipated by Gilbert et al. (U.S. Patent # 6,337,683).

1. As for **Claim 1**, Gilbert et al. teach a method of streaming a panorama from a server to a client, wherein a user can only see the portion of the panorama in a view window (see col. 2 lines 54-60 "The present invention simulates movement through multi-dimensional space using a series of panoramic images which are projected or displayed in sequence. The user's direction of view, that is the selected view window, is maintained as the series of images is projected or displayed." The limitation of the user seeing only a portion of the panorama is met by col. 5 lines 16-18 "At any particular time, only a part (i.e. the view window) from one key frame is visible to a user or observer. The direction of each arrow indicates the direction of view, that is, the view window or part of the key frame that is projected on a screen for observation." The

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limitation of the server and client is met by fig. 2. Units 10 (Lens & Electronics and Embedded Computer), 20 (Computer that stores images), and 21 (computer that seams and stores panoramas) are interpreted to be the server and unit 22 "Viewer" is interpreted to be a client. and the user can move the location of the view window in the panorama (see col. 5 lines 19-30 "The arrows in FIG. 4A are meant to represent a particular "view window" from each key frame. As indicated by the change in direction of the arrows in the area of FIG. 4A designated by the letter E, a viewer can change his direction of view as the pan movie progresses."), said method comprising the steps of:

dividing the panorama into slices (see col. 7 lines 18-22 "The output of CCD array 43a is fed into a JPEG data compression chip 44a. Chip 44a compresses the image from lens 41a so that the image can be more easily transmitted to computer 40. The output from compression chip 41a fed to an embedded controller 45 which transmits signals to computer 40 on a serial **time slice basis**." It is interpreted that the panorama is divided into slice when the signals are transmitted to computer 40 on a serial time slice basis),

transmitting from the server to the client slices of said panorama that contain the view window plus a guard band surrounding the view window (See fig. 1 Panorama 3a and View Window 3b col. 4 lines 24-30 "FIG. 1 shows a key frame (i.e. a panoramic image) or a panorama 3a. Panorama 3a has a view window 3b which corresponds to a portion of panorama 3a. Panorama 3a also has associated therewith a number of sound tracks 3c." The key frame or Panorama 3a is interpreted to be the guard band that is transmitted with the view window 3b),

transmitting from the client to the server instructions to change the location of said guard band as said user moves said view window (see col. 5 lines 30-38 "The sequence of images begins at the point or at the key frame indicated by the letter A and the sequence proceeds to the point or key frame indicated by the letter B. At this point the viewer can select to either go toward point C or toward point D. The selection may be made by "clicking" on a designated "hot spot" in the panorama designated B or it may be made depending on some other criteria or action by the user." When a user chooses to go towards direction D, it is interpreted that new key frames in the direction of point D will be transmitted from the server. Also, when a viewer chooses direction point D, the user is inherently moving his view window. The user's action of selecting a "hot spot" is interpreted as an instruction sent from the client to the server to change the location of said guard band as said user inherently moves said view window.)

2. As for **Claim 2**, Gilbert et al. teach said slices are the slices defined in the MPEG standard (see col. 3 lines 2-9 "If the images are stored in compressed format, in order to conserve time and processing power, when an image is displayed, only the portion of the panorama necessary to create a "view window" that is, the portion of the image displayed in response to the user's direction of view, is decompressed. Furthermore, the images are stored in a format that does not utilize inter-image compression (such as that used by the MPEG format).").

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4. As for **Claim 4**, Gilbert et al. teach the client and the server are located on the same physical machine (see fig. 9A and col. 9 lines 39-49 "FIG. 9A is a block diagram of the viewer 22 which plays or displays pan movies. The main components of the viewer 22 are a CD disk reader 80, a computer 81, a display 82, keyboard 84 and a mouse 85. Computer 81 reads key frames from disk 80 and displays the view window from each key frame on display 82. The operator or user utilizes mouse 85 to indicate a view direction. The view direction determines the view window which is displayed on display 82 by computer 81.") It is interpreted that the server (Computer 81) and client (Display 82) are located on the same physical machine.

5. As for **Claim 5**, Gilbert et al. teach the method of streaming data relative to a series of panoramic images from a server to a client, whereby a view window of said client can be displayed to a user (See col. 4 lines 21-30 "A panoramic image provides data concerning what is visible in any direction from a particular point in space. At any particular time a viewer or user can only look in one direction. The direction or point of view of a viewer or user determines the "view window", that is, the part of a panoramic image, which is projected on a screen at a particular time."), said method comprising the steps of:

dividing each of said panoramic images into areas (see col. 4 line 27-30 "FIG. 1 shows a key frame (i.e. a panoramic image) or a panorama 3a. Panorama 3a has a view window 3b which corresponds to a portion of panorama 3a." The key frames are areas of a panoramic image,

streaming a plurality of said areas from each area from said server to said client, said plurality of areas including said view window and a guard band around said view window (see col. 4 lines 63-67 "Finally the images are compressed as indicated by block 21d and stored with an index file as indicated by block 21e. Each panorama is termed a "key frame". A series of key frames (or more precisely a sequence of view windows) projected in sequence is a pan movie."),

displaying said view window portion of said panorama at said client (See col. 5 lines 1-8 "For each key frame displayed the viewer 22 determines an appropriate view window as indicated by block 22a. The portion of the key frame which corresponds to the view window is then de-compressed and displayed as indicated by block 22b."),

accepting user directions to change the location of said view window (see col. 5 lines 19-30 "The arrows in FIG. 4A are meant to represent a particular "view window" from each key frame. As indicated by the change in direction of the arrows in the area of FIG. 4A designated by the letter E, a viewer can change his direction of view as the pan movie progresses. It is noted that when a user is viewing a panorama, a user can point toward the top or bottom of the screen and thus can view images located in a 360 degree circle from top to bottom in addition to the horizontal directions illustrated by the arrows shown in FIG. 4A." Whenever a user changes his direction of view, his corresponding "view window" is going to change. It is interpreted that when a user chooses to change his direction of view, instructions to change the location of the view window is sent from the client to the server),



sending commands to said server to change said plurality of areas being streamed to said server when said view window is changed more than a threshold amount, and changing the areas streamed from said server to said client in response to said commands (see col. 5 lines 19-30 "The arrows in FIG. 4A are meant to represent a particular "view window" from each key frame. As indicated by the change in direction of the arrows in the area of FIG. 4A designated by the letter E, a viewer can change his direction of view as the pan movie progresses. It is noted that when a user is viewing a panorama, a user can point toward the top or bottom of the screen and thus can view images located in a 360 degree circle from top to bottom in addition to the horizontal directions illustrated by the arrows shown in FIG. 4A." Whenever a user changes his direction of view, his corresponding "view window" is going to change. It is interpreted that when a user chooses to change his direction of view, instructions to change the location of the view window is sent from the client to the server. See also col. 9 lines 31-38 "In order to avoid unnecessary user intervention, "hidden" hot spots may be added to connect multiple pan movies. A hidden hotspot is one that does not need to be manually selected by the user. With a hidden hot spot, if the user "travels" into a particular key frame which has a hidden hot spot, and the user is "looking" in the hot spot's general direction, then the system will react based upon the user's implicit selection of the hotspot and the user will be sent along the path directed by the hot spot." When a user is 'travels' and comes to an area where there are hidden hotspots, it is interpreted that there is an inherent threshold present that measures how close the

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a viewer's view window is close to a hotspot wherein the user will be sent along a new path that results in the server changing the areas being streamed to the client.)

6. As for **Claim 6**, Gilbert et al. teach said areas are MPEG slices (see col. 3 lines 2-9

"If the images are stored in compressed format, in order to conserve time and processing power, when an image is displayed, only the portion of the panorama necessary to create a "view window" that is, the portion of the image displayed in response to the user's direction of view, is decompressed. Furthermore, the images are stored in a format that does not utilize inter-image compression (such as that used by the MPEG format).")

7. As for **Claim 7**, in light of the 112 rejection made above on the limitation of Claim 7, Claim 7 is interpreted to refer to any generic server. Gilbert et al. teach a generic server (see fig. 2 unit 21 "Computer that Seams and Stores Panoramas" is interpreted to be the server).

8. As for **Claim 8**, Gilbert et al. teach said panorama is displayed to said user in a perspective correct manner (see col. 13 lines 64-66 "The program given in Appendix A will retrieve frames for a move, correct the perspective in accordance with known equations and then display the images of the movie in sequence." It is interpreted that the panorama displayed to the user will be in a perspective corrected manner as the program in Appendix A will correct the perspective.)

10. As for **Claim 10**, Gilbert et al. teach said server and said client are on the same physical machine. See fig. 9A and col. 9 lines 39-49 "FIG. 9A is a block diagram of the viewer 22 which plays or displays pan movies. The main components of the viewer 22 are a CD disk reader 80, a computer 81, a display 82, keyboard 84 and a mouse 85. Computer 81 reads key frames from disk 80 and displays the view window from each key frame on display 82. The operator or user utilizes mouse 85 to indicate a view direction. The view direction determines the view window which is displayed on display 82 by computer 81." It is interpreted that the server (Computer 81) and client (Display 82) are located on the same physical machine.

11. As for **Claim 11**, the limitations of Claim 11 are included in the limitations of Claim 5. Claim 11 is analyzed and rejected as previously presented in Claim 5. Claim 11 further requires means of carrying out the limitations. Gilbert et al. teach the means of carrying out the limitation in Appendices A, B, C, and D. See col. 5 lines 9-12 "It is noted that the operations indicated by blocks 20a, 20b, 21a to 21e, 22a, 22b, and 22c are implemented by means of computer programs which perform the functions shown. Computer programs are given in appendices A, B, C, and D."

12. As for **Claim 12**, Gilbert et al. teach each of said areas comprise a plurality of MPEG slices (see col. 3 lines 2-9 "If the images are stored in compressed format, in

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order to conserve time and processing power, when an image is displayed, only the portion of the panorama necessary to create a "view window" that is, the portion of the image displayed in response to the user's direction of view, is decompressed.

Furthermore, the images are stored in a format that does not utilize inter-image compression (such as that used by the MPEG format).").

14. As for **Claim 14**, Gilbert et al. teach said server and said client are on the same physical machine (see fig. 9A and col. 9 lines 39-49 "FIG. 9A is a block diagram of the viewer 22 which plays or displays pan movies. The main components of the viewer 22 are a CD disk reader 80, a computer 81, a display 82, keyboard 84 and a mouse 85. Computer 81 reads key frames from disk 80 and displays the view window from each key frame on display 82. The operator or user utilizes mouse 85 to indicate a view direction. The view direction determines the view window which is displayed on display 82 by computer 81.") It is interpreted that the server (Computer 81) and client (Display 82) are located on the same physical machine.).

15. As for **Claim 15**, Gilbert et al. teaches all said means are physically located on one physical system (See col. 5 lines 9-12 "It is noted that the operations indicated by blocks 20a, 20b, 21a to 21e, 22a, 22b, and 22c are implemented by means of computer programs which perform the functions shown. Computer programs are given in appendices A, B, C, and D.") It is interpreted that the computer programs will be stored and run from one computer.

16. As for **Claim 16**, Gilbert et al. teach a system for allowing a series of panoramic images stored at a server to be viewed by a user at a client (see col. 2 lines 54-60 "The present invention simulates movement through multi-dimensional space using a series of panoramic images which are projected or displayed in sequence. The user's direction of view, that is the selected view window, is maintained as the series of images is projected or displayed."), said system including,

a streaming server at said server for streaming data to said client (fig. 2 unit 21 "Computer that Seams and Stores Panoramas" is interpreted to be the server),

a program at said server for providing said streaming server with an area of interest from each panorama to be streamed to said client, said area of interest including a view window and a guard band around said view window (see col. 4 lines 55-67 "The stored images are manually transferred to off line computer 21 which is programmed to perform the operations shown in FIG. 3C. First the images are decompresses as indicated by block 20a so that they can be manipulated. Next the single view images are seamed into a panorama and transformed to equirectangular format as indicated by block 21b. Hot spots which indicate break points in a sequence of images and sound tracks are added next as indicated by block 21c. Finally the images are compressed as indicated by block 21d and stored with an index file as indicated by block 21e. Each panorama is termed a "key frame". A series of key frames (or more precisely a sequence of view windows) projected in sequence is a pan

movie.” Computer 21 prepares the stored panoramic image to be streamed to the client.), and

a program at said client for receiving said data and for selecting the data representing said view window and for displaying said view window to said user (see col. 5 lines 1-8 “A viewer program in viewer computer 22 is used to view the pan movies. The viewer 22 displays in sequence a series of images, that is, a series of key frames. For each key frame displayed the viewer 22 determines an appropriate view window as indicated by block 22a. The portion of the key frame which corresponds to the view window is then de-compressed and displayed as indicated by block 22b.”).

17. As for **Claim 17**, Gilbert et al. teach a user input device whereby said user can move said view window in said area of interest, and a communication path from said client to said server whereby said client can instruct said server to change the location of said view window (see col. 9 lines 39-49 “FIG. 9A is a block diagram of the viewer 22 which plays or displays pan movies. The main components of the viewer 22 are a CD disk reader 80, a computer 81, a display 82, keyboard 84 and a mouse 85. Computer 81 reads key frames from disk 80 and displays the view window from each key frame on display 82. **The operator or user utilizes mouse 85 to indicate a view direction. The view direction determines the view window which is displayed on display 82 by computer 81.** A program which implements blocks 22a to 22c (shown in FIG. 3D) is stored in and executed by computer 81.” It is interpreted that the user uses the mouse

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85 to indicate the view direction, which in turn determines the view window, which instructs the server to transfer data that is related to the updated frame of view.).

18. As for **Claim 18**, Gilbert et al. teach said user input device is a computer mouse.

See col. 9 lines 44-46 "The operator or user utilizes mouse 85 to indicate a view direction. The view direction determines the view window which is displayed on display 82 by computer 81".

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

**Claim 3** is rejected under 35 U.S.C. 103(a) as being unpatentable over Gilbert et al. (U.S. Patent # 6,337,683) in view of Driscoll JR (PG Pub 2001/0010555).

3. As for **Claim 3**, Gilbert et al. do not expressly teach the streaming from the server to the client is handled by a streaming server and a plug-in to said server provides the slices in said guard band. However, in the same field of endeavor, Driscoll JR teaches

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a method of capturing a 360 degree panoramic image and a method of displaying a portion of the panoramic image at a client is handled by a streaming server and a plug-in to said server. See Driscoll JR Fig. 13A and [0106] "Referring back to FIG. 13a, user input processing routines 1250 and 1253 processing the user's commands. When a user requests a viewpoint change, the new viewpoint is communicated to the respective annular to video conversion units 1240 or 1243 such that it will begin converting images from the new user viewpoint. In an alternate embodiment, the user input processing routines are place within the client program on the client computer system. For example, in an embodiment of a WWW browser program, a plug-in program can process the user commands and simply pass the location of the video viewport to the server." In light of the teaching of Driscoll JR, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the teaching of Gilbert et al. to have a streaming server and plug-in to said server provide the slices in said guard band to the client. One of ordinary skill in the art at the time the invention was made would have been motivated to do this if the panoramic image was streamed via a WWW browser program that requires a plug-in.

**Claims 9 and 13** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gilbert et al. (U.S. Patent # 6,337,683) in view of Driscoll et al. (U.S. Patent # 6,219,089)



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9. As for **Claims 9 and 13**, Gilbert et al. do not expressly teach said server simultaneously streams portions of different panoramas to different clients. However, in the same field of endeavor, Driscoll et al. teach a method and apparatus of distributing portions of panoramic images to a plurality of clients. See Driscoll et al. col. 6 lines 37-53 "The clients in panoramic client server environment would likely consist of workstations and personal computers. The capabilities of each different panoramic client would vary depending upon the client systems specifications including the computer make, the processor type, the processor generation, the amount of random access memory available, and the bus speed." In light of the teaching of Driscoll et al., it would have been obvious to one of ordinary skill in the art at the time the invention was made to have modified the teaching of Gilbert et al. to have multiple clients. It is interpreted that when there are multiple clients, the server will simultaneously streams portions of different panoramas to different clients. One of ordinary skill in the art at the time the invention was made would have been motivated to do this ~~in~~ in order to service multiple clients using a single server in order to reach more clients.

**Claims 19 and 20** are rejected under 35 U.S.C. 103(a) as being unpatentable over Gilbert et al. (U.S. Patent # 6,337,683).

19. As for **Claim 19**, Gilbert et al. do not expressly teach said panoramic images are stored at said server using MPEG compression forming "I" and "B" or "P" frames.

Gilbert et al. do however teach said panoramic images are stored using the MPEG compression format (see Gilbert et al. col. 3 lines 7-9 "Furthermore, the images are stored in a format that does not utilize inter-image compression (such as that used by the MPEG format)"). However, Official Notice (MPEP § 2144.03) is taken that both the concepts and advantages of using MPEG compression forming "I" (intra- frames) and "B" (Bi-direction predicted frames) or "P" (forward-predicted frames) are well known and expected in the art. At the time the invention was made, it would have been obvious to one with ordinary skill in the art to have the MPEG compression be constructed from "I" and "B" frames or "I" and "P" frames. One of ordinary skill in the art at the time the invention was made would have been motivated to use "I" and "B" frames if bi-directional frame prediction is desired and "I" and "P" frames if bi-directional frame prediction is not desired.

20. As for **Claim 20**, the modified Gilbert et al. teaches the region of interest from "I" frames and entire "B" or "P" frames are transmitted from said server to said client (see col. 4 lines 40-46 "The images are transferred from computer 20 to off line computer 21. Computer 21 seams the images into panoramas, transforms the images to equirectangular format, adds other information to the images, compresses the panoramas, and links the panoramas into a pan movie. Finally the pan movie is viewed on viewer 22.").

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Kirubel Aklilu whose telephone number is 571-272-7342. The examiner can normally be reached on 9:00AM - 5:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Miller can be reached on 571-272-7353. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

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5/9/05



NGOC-YEN YU  
PRIMARY EXAMINER